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09/990,916	11/16/2001	Mark T. Feuerstraeter	42390P11857	3507

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EXAMINER
DALENCOURT, YVES

ART UNIT	PAPER NUMBER
2157	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	09/990,916	FEUERSTRAETER ET AL.
	Examiner	Art Unit	
	Yves Dalencourt	2157	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>03 October 2007</u>.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>30-43 and 45-48</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>30-43 and 45-48</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected.to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

This office action is responsive to amendment filed on 10/03/2007.

Response to Amendment

The Examiner has acknowledged the amended claims 30, 35, 39, 43, and the

submission of new claim 48.

Response to Arguments

Applicant's arguments with respect to claims 30 – 43 and 45 - 48 have been

considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

Claims 30, 32 – 43 and 45 – 47 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Timm et al (US 6,055,268; hereinafter Timm) in view of Hickman et al

(US 6,819,680; hereinafter Hickman).

Regarding claim 30, Timm a method comprising the steps of identifying a

communication capability of a remote device (col. 7, lines 2 – 5; col. 11, line 53 through

col. 12, line 7; col. 18, lines 29 - 64); automatically aggregating a media access

controller, based at least in part, on the identified communication capability of the

remote device, to establish a virtual data-sub channel within a physical data channel for

communication between a communication interface and the remote device (fig. 7a; col.

7, lines 16 – 32; col. 18, lines 49 – 64; col. 23, lines 20 – 57; Timm discloses that after

the initial channel probing period, the MDSL modem at the subscriber-end has

determined the line code capability of the central office end modem and has a channel

model for the downstream band and, similarly, the MDSL modem at the central office

end has determined the line code capability of the subscriber-end modem and has a

channel model for the upstream); determining whether a data rate of the virtual sub-

channel is compatible with the communication capability of the remote device (col. 5,

line 66 through col. 6, line 19; col. 18, line 65 through col. 19, line 4; col. 22, line 51

through col. 23, line 13); reducing the data rate of the virtual sub-channel if the data rate

is not compatible with the communication capability of the remote device (col. 5, line 66

through col. 6, line 64; col. 21, lines 26 – 48; col. 23, lines 26 – 67; Timm discloses that

the data rate can be adapted by the negotiation method to a suitable level, by

considering the capability of a particular DSL connection, available computational

power, and any special application program requirements).

Timm discloses substantially all the limitations, but fails to specifically teach the

idea of aggregating multiple media access controllers (MACs).

However, Hickman teaches an analogous link aggregation control for network

devices which discloses the idea aggregating multiple media access controllers (MACs)

(col. 3, lines 44 – 54; col. 6, line 62 through col. 7, line 12; and col. 7, line 64 through

col. 8, line 8; Hickman discloses a link aggregation system may contain multiple

aggregators serving a multiplicity of MAC clients).

Thus, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the teachings of Timm by incorporating the idea of

aggregating multiple media access controllers (MACs) as evidenced by Hickman for the

purpose of providing greater resilience, that is to say an enhanced ability to tolerate

physical changes to a system of links while reducing a need to deconstruct or modify

any existing aggregation.

Claim 39 substantively incorporates the limitations of claim 30, but in computer

software form. The reasons for the rejection of claim 30 apply to claim 39.

Regarding claim 32, Timm and Hickman teach all the limitations in claim 30, and

Timm further teaches wherein identifying a communication capability of the remote

device comprises the steps of sending a capability request (col. 18, lines 40 - 48); and

receiving a response to the request denoting at least the communication capability of

the remote device (col. 18, line 49 through col. 19, line 11).

Regarding claim 33, Timm and Hickman teach all the limitations in claim 30, and

Timm further teaches wherein identifying a communication capability of the remote

device comprises the steps of receiving an indication from the remote device denoting

the communication capability of the remote device (col. 18, line 49 through col. 19, line

11; col. 27, lines 11 - 16; Timm discloses that the MDSL modem at the subscriber-end

sends its rate capabilities and its preference).

Regarding claim 34, Timm and Hickman teach all the limitations in claim 33, and

Timm further teaches wherein the indication also denotes a processing capability of the

remote device (col. 18, line 49 through col. 19, line 11).

Regarding claim 35, Timm and Hickman teach all the limitations in claim 30, and

Timm further teaches wherein the communication capability of the remote device is

obtained by the communication interface through a negotiation process (col. 18, line 49

through col. 19, line 11).

Regarding claim 36, Timm and Hickman teach all the limitations in claim 30, and

Timm further teaches wherein establishing the virtual data sub-channel within a physical

Ethernet data channel comprises establishing a sub-10 gigabit per second (Gb/s) virtual

data channel within a physical 10Gb/s data channel (col. 23, lines 23 – 43; col. 24, lines

1 – 65; Timm discloses that the Software Driver Layer 7310, 7410 views the connection

as a virtual channel called the data link channel (DLC). For convenience, the DLC may

be a frame structure that represents multiple N kbit/sec channels (N=16 e.g.). The table

entries show the achievable transmission throughputs in kilobits/second for a given rate

R and N bits represented by each symbol. Thus, the number N of kilobits/second

channels is based on processing capability of the device). Also, Timm teaches an auto-

negotiation feature/step. Auto-negotiation feature/step allows devices to communicate

at the highest available rate of a device below its maximum capacity, which would be

sub-10Gbs.

Regarding claim 37, Timm and Hickman teach all the limitations in claim 30, and

Timm further teaches wherein reducing the data rate of the virtual sub-channel

comprises inserting idle control elements between substantive frames of a data stream

of the virtual sub-channel (col. 48, lines 39 - 49).

Claim 40 substantively incorporates the limitations of claim 36, but in computer

software form. The reasons for the rejection of claim 36 apply to claim 40.

Claim 41 substantively incorporates the limitations of claim 34 and 35, but in

computer software form. The reasons for the rejection of claim 34 and 35 apply to claim

41.

Claim 43 substantively incorporates the limitations of claims 30 and 36, but in

apparatus form rather than in method form. Claim 43 cites a control logic, to identify a

communication capability of a remote device communicatively coupled with the control

logic through a communication link [See the discussion of claim 30. "A control logic" is

merely a means to identify the communication capability in claim 30]; a media access

controllers (MAC), responsive to the control logic, automatically aggregated by the

control logic to establish either a 10 gigabit per second (Gb/s) physical channel or a

sub-10 Gb/s virtual channel within the 10 Gb/s physical channels to facilitate

communication from the apparatus to the remote device based, at least in part, on the

identified communication capability of the remote device, wherein the control logic

further determines whether a data rate of the established channel is compatible with the

communication capability of the remote device and cause the aggregation of MACs to

reduce the data rate of the established channel if the data rate is not compatible with

the communication capability of the remote device. See claim 30 and claim 36 for the

substantive discussion of the limitation.

Timm teaches substantially all the limitations, but fails to specifically teach the

idea of aggregating multiple media access controllers (MACs).

However, Hickman teaches an analogous link aggregation control for network

devices which discloses the idea aggregating multiple media access controllers (MACs)

(col. 3, lines 44 – 54; col. 6, line 62 through col. 7, line 12; and col. 7, line 64 through

col. 8, line 8; Hickman discloses a link aggregation system may contain multiple

aggregators serving a multiplicity of MAC clients).

Thus, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the teachings of Timm by incorporating the idea of

aggregating multiple media access controllers (MACs) as evidenced by Hickman for the

purpose of providing greater resilience, that is to say an enhanced ability to tolerate

physical changes to a system of links while reducing a need to deconstruct or modify

any existing aggregation.

Claims 38, 42, and 45 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Timm and Hickman in view of "802.3ae 5 Criteria" (which was

referenced by "Chair's Introductory Remarks" at IEEE 802.3 10Gb/s Task Force July

2000 Plenary Week, July 11-12, 2000) and "XAUI/XGXS Proposal" presentation at

IEEE 802.3 10Gb/s Task Force May 2000 Interim Meeting Plenary Week, July I 1-12,

2000,

With regard to claim 38, Timm and Hickman do not teach automatically

aggregating 1Gb/s media access controllers (MACs) to establish the virtual sub-

channel; and dynamically multiplexing the 1Gb/s MACs to appropriate channels of an

attachment unit interface (AUI). Timm teaches multiple MACS with which to establish

the virtual channel and dynamically multiplexing them. Note that Timm does not use the

specific bandwidth specified in the claim for each MAC.

At this point, in order to make the prima facie argument that claim 38 should be rejected

under 103(a); the Examiner must show the reason why one would select 1Gb/s and 10

Gb/s MACs.

The reason for the selection of the size of bandwidth of 1 Gb/s flow from further

consideration of the compatibility question: what 802.3 compliant sub- 10Gb/s data

channel interface bandwidths are most commercially popular and would likely must co-

exist (i.e., compatible) with to 802.3ae?

It would have been obvious to one skilled in the art at the time of the invention to

choose 1Gb/s channels, because that is the next fastest IEEE 802.3 standard for

Ethernet. If anyone were to upgrade their Ethernet interfaces, those would most likely

be upgrading from bandwidths in multiple of 1Gb/s.

Claim 42 substantively incorporates the limitations of claim 38, but in computer

software form. The reasons for the rejection of claim 38 apply to claim 42.

Claim 45 substantively incorporates the limitations that are similar to those in claim 38, but in slightly different wording and in apparatus form. The reasons for the rejection of claim 38 still apply to claim 45.

Claims 31 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Timm et al (US 6,055,268; hereinafter Timm) in view of Hickman et al (US 6,819,680; hereinafter Hickman), and further in view of Lay et al (6,862,293; hereinafter Lay).

Regarding claim 31, Timm and Hickman teach substantially all the limitations in claim 30, but fails to specifically teach that the communication link is an IEEE 802.3ae compliant communication link, with a data channel of 10 gigabit per second (Gb/s).

However, Lay teaches an analogous method and apparatus for providing optimized high speed link utilization that discloses that the communication link is an IEEE 802.3ae compliant communication link, with a data channel of 10 gigabit per second (Gb/s) (col. 4, lines 24 - 33).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Timm by incorporating a communication link, which is an IEEE 802.3ae compliant communication link, with a data channel of 10 gigabit per second (Gb/s) as evidenced by Lay for the purpose of facilitating more flexibility in connecting the 802.3ae to the physical media interface, thereby providing efficiency, high performance, scalability, ease of use and installation.

Regarding claim 48, Timm, Hickman, and Lay teach all the limitations in claim 43, and Lay further teaches an attachment unit interface (AUI) having four (4) 10Gb/s

attachment unit interface (XAUI) channels, each channel supporting 2.5Gb/s

communication rates which are aggregated to provide a 10Gb/s physical channel as

evidenced by Lay for the purpose of facilitating more flexibility in connecting the 802.3ae

to the physical media interface, thereby providing efficiency, high performance,

scalability, ease of use and installation.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yves Dalencourt whose telephone number is (571) 272-3998. The examiner can normally be reached on M-TH 7:30AM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272 4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

December 19, 2007

YVES DALENCOURT
PRIMARY EXAMINER
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